

2-Port Asynchronous EIA-232 PCI Adapter

Installation and Using Guide

Note:

Before using this information and the product it supports, read the general information under "Product Warranties and Notices" included with your system unit.

First Edition (February 2005)

Before using this information and the product it supports, read the information in "Safety Information" on page v and Appendix A, "Notices," on page 11.

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Safety Information

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.

D05

Handling Static Sensitive Devices

Attention: Static electricity can damage this device and your system unit. To avoid damage, keep this device in its anti-static bag until you are ready to install it in your system unit.

Electrostatic Discharge Protection

To reduce the possibility of electrostatic discharge, follow the precautions listed below:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or by its frame.
- Do not touch solder joints, pins, or other printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- While the device is still in its anti-static package, touch it to an unpainted metal part of the system unit for at least two seconds, to drain static electricity from the package and from your body.
- Remove the device from its package and install it directly into your system unit without setting it down. If it is necessary to set the device down, place it on its static-protective package. If your device is an adapter, place it component-side up. Do not place the device on your system unit cover or on a metal table.
- Take additional care when handling devices during cold weather, as heating reduces indoor humidity and increases static electricity.

About This Book

This book provides information about the 2-Port Asynchronous EIA-232 PCI Adapter. Use this book together with your specific system unit and operating system documentation.

Refer to your system unit and operating system documentation for information specific to your hardware and software configuration.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Highlighting

The following highlighting conventions are used in this book:

Bold	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
<i>Italics</i>	Identifies parameters whose actual names or values are to be supplied by the user.
Monospace	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or information you should actually type.

References to AIX Operating System

This document may contain references to the AIX operating system. If you are using another operating system, consult the appropriate documentation for that operating system.

This document may describe hardware features and functions. While the hardware supports them, the realization of these features and functions depends upon support from the operating system. AIX provides this support. If you are using another operating system, consult the appropriate documentation for that operating system regarding support for those features and functions.

Related Publications

The following publications contain related information:

- System unit documentation for information specific to your hardware configuration
- Operating system documentation for information specific to your software configuration
- *PCI Adapter Placement Reference Guide*, (for the latest version, you may need to contact your marketing representative)

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- RS/6000
- IBM
- SP

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Chapter 1. Overview

The 2-Port Asynchronous EIA-232 PCI Adapter, Feature Code (FC) 5723, is a PCI adapter that supports 32-bit buses at bus speeds of up to 33 MHz and is compliant with PCI Local Bus Specification Revision 2.2.

The adapter is designed specifically to provide connectivity to EIA-232 devices such as modems, printers, and TTY terminals on an IBM eServer pSeries server. It is intended to provide a lower cost alternative to the 8-Port Asynchronous adapter, FC 2943, for those customers that require only one or two extra EIA-232 Asynchronous ports.

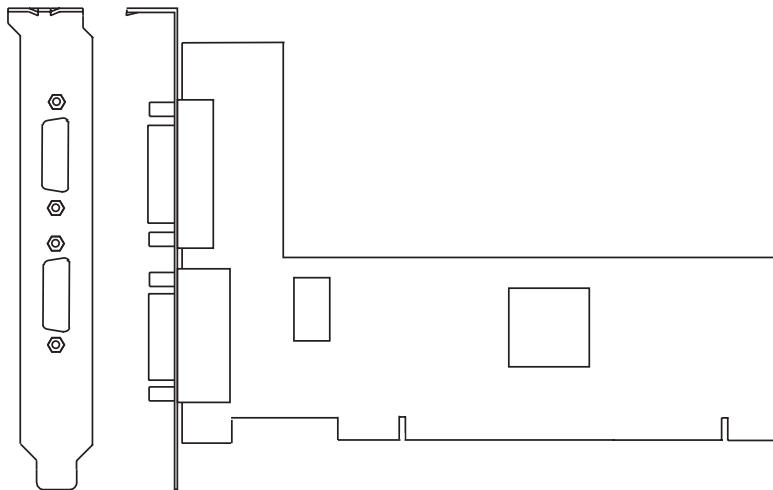
In addition to standard serial support, the EXAR chip is enhanced with the following additional capabilities: Xon/Xoff protocol support on the adapter, Modem handshake, RTS/CTS, and DTR/DSR support on the adapter.

The adapter provides two DB09 connectors. Each connector is wired identically to the DB09 connectors on the existing pSeries asynchronous ports.

The adapter does not have surge and isolation characteristics to prevent damage from electrical surges, therefore, the adapter should not be connected to lines that go outside the building.

The Field Replaceable Unit (FRU) part number is 80P4353. The 2-Port Asynchronous EIA-232 PCI Adapter is an EMC FCC and CISPR Class B device.

Figure 1. 2-Port Asynchronous EIA-232 PCI Adapter



Hardware Requirements

The IBM 2-Port Asynchronous EIA-232 PCI Adapter is a universal voltage 32-bit PCI device that is capable of operating in either 33 MHz or 66 MHz slots. The adapter can be installed in any slot in supported pSeries systems. The adapter is hot-pluggable. For the current list of supported systems, contact the installing IBM representative.

Do not exceed the maximum number of FC 5723 supported by a given machine as specified by the particular system unit. Refer to the publication *PCI Adapter Placement Reference* form no. SA38-0538, for correct placement of adapters.

Software Requirements

The IBM 2-Port Asynchronous EIA-232 PCI Adapter is supported only on AIX 5.2 and later.

Chapter 2. Installing the IBM 2-Port Asynchronous EIA-232 PCI Adapter

The following procedure describes how to install the 2-Port Asynchronous EIA-232 PCI Adapter into the system unit. The steps may vary depending on the system unit, particularly if it is a system that supports a blind swap cassette. For detailed instructions on performing the following procedures, refer to the documentation that was provided with the system unit;

1. Perform the necessary shutdown procedures to protect the system and data.
2. Shut down the system unit.
3. Remove the system unit covers, referring to the documentation that was provided with the system.
4. Install the adapter into the system unit in any available slot.
5. Replace the system unit covers.

Chapter 3. Installing Device Driver Software

The device driver and diagnostic program for the 2-Port Asynchronous EIA-232 adapter are installed as part of a typical software installation. However, if the adapter was installed after the operating system was installed on the system, the adapter support software must be installed from the media that was shipped with adapter. Install the 2-Port Asynchronous EIA-232 device drivers using 'smitty' in the standard way. The AIX device packages are named: `devices.pci.4f11c800.rte` and `devices.pci.4f11c800.diag`. Both must be installed.

After installing the device driver, configure and check the adapter with the following steps:

1. Reboot or run the **cfgmgr** command (as root user) to configure the adapter.
2. To check that the device(s) have been correctly configured, perform the following command: `lsdev - C | grep EIA-232`. AIX will display one line for each 2-Port Asynchronous EIA-232 adapter installed. The following is an example of the output if one 2-Port Asynchronous EIA-232 adapter is installed and there were no other types of serial adapters installed:

```
sa0  Available 07-08 2-Port Asynchronous EIA-232 PCI Adapter
```

The following is an example of what you should see if four 2-Port Asynchronous EIA-232 adapters are installed and there were no other type of serial adapters installed:

```
sa0  Available 07-08 2-Port Asynchronous EIA-232 PCI Adapter
sa1  Available 0A-08 2-Port Asynchronous EIA-232 PCI Adapter
sa2  Available 0B-08 2-Port Asynchronous EIA-232 PCI Adapter
sa3  Available 0C-08 2-Port Asynchronous EIA-232 PCI Adapter
```

If the adapter and device driver have been correctly configured, they are indicated as Available.

Note: The Defined state indicates that the adapter has not been detected or configured, or the device driver has not been configured correctly.

The third column in the previous output (for example, 07-08) indicates the slot position for the adapter. For details of how the information in this field maps to a physical slot, see the documentation for the system unit.

Chapter 4. Problem Determination

Diagnostics for the adapter are part of AIX Diagnostics Version 5.2 Maintenance Level 5 and AIX Diagnostics Version 5.3 Maintenance Level 1. The diagnostic support programs are installed at the same time that the AIX device driver support was installed, as described in the previous chapter.

Running diagnostics

Hardware diagnostics can be run on the adapter, but only when no application is active. To run the diagnostics, do the following:

1. Log in to AIX as root user.
2. Run the command line diagnostics.

Running diagnostics with wrap plugs

To test the adapter with installed wrap plugs and the full set of diagnostics, 2 X " DB09 plug cable wrap" IBM part number 6298965 are required. These should be temporarily plugged into the adapter back plate for both ports instead of any serial connector that may be attached. To run the diagnostics:

1. Log in to AIX as root user.
2. Run the command line diagnostics.

If any test fails, verify that the wrap plugs are correctly seated and then rerun the diagnostics. If a failure persists, change the adapter card.

Chapter 5. Cables and Connectors

Cable information

The adapter uses two DB09 connectors to attach to asynchronous EIA-232 networks. These DB09 connectors are wired identically to the DB09 connectors found on existing systems later than 7025-F50, allowing clients to use cabling developed for use with existing systems.

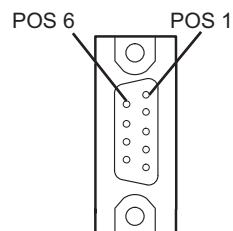
No cables are supplied with the adapter. The following cables may be used:

- If attachment is being made to device with a standard EIA-232 DB25 connector, then IBM Cable part number 40H6328 or equivalent may be used. This is a 12' cable that converts DB09 to a standard EIA-232 DB25.
- If attachment is being made to an IBM 3151 Terminal, IBM Cable part number 46G0450 may be used.

DB09 connector pins

The following illustration shows a DB09 connector.

Figure 2. DB09 Connector



The following table shows the pin assignments for the DB09 connector.

Table 1. Pin Assignments

DB09 Connector Pin Number	Signal Name	I/O
1	DCD	I
2	RxD	I
3	TxD	O
4	DTR	O
5	SG	—
6	DSR	I
7	RTS	O
8	CTS	I
9	RI	I

Appendix A. Notices

This information was developed for products and services offered in the U.S.A.

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

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Product Recycling and Disposal

This unit contains materials such as circuit boards, cables, electromagnetic compatibility gaskets and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product-return programs in several countries. Information on product recycling offerings can be found on IBM's Internet site at <http://www.ibm.com/ibm/environment/products/prp.shtml>

IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of programs and services to assist equipment owners in recycling their IT products. Information on product recycling offerings can be found on IBM's Internet site at <http://www.ibm.com/ibm/environment/products/prp.shtml>.

Battery Return Program

This product may contain sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to

<http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml> or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM Equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

In the Netherlands, the following applies:



For Taiwan:



Please recycle batteries.

Appendix B. Communications Statement

The 2-Port Asynchronous EIA-232 PCI Adapter is an EMC FCC and CISPR Class B device.

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

Communications Statements

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from authorized dealers. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

- International Business Machines Corporation
- New Orchard Road
- Armonk, New York 10504
- Telephone: (919) 543-2193



European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Canadian Department of Communications Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

The following is a summary of the VCCI Japanese statement in the box above.

This product is a Class B Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). This product is aimed to be used in a domestic environment. When used near a radio or TV receiver, it may become the cause of radio interference. Read the instructions for correct handling.

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG–Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

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